UNITED STATES PATENT AND TRADEMARK OFFICE DOCUMENT CLASSIFICATION BARCODE SHEET



ANNOTATION 1

(Substitute)

Internal Flag

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WHAT IS CLAIMED IS:

- 1. An isolated nucleic acid which encodes a cancer cell antigen and which comprises a sequence selected from the group consisting of:
 - (a) the nucleotide sequence of any one of SEQ ID NOs: 1, 2, 6, 9, 11, 14, 16, 20, 21, 23, 28, 37, 38, 39, 41, 43, and 44;
 - (b) a nucleotide sequence encoding SEQ ID NO: 22, 32, 40, or 42; and
 - (c) a nucleotide sequence complementary to (a) or (b).
- 2. The isolated nucleic acid of claim 1, wherein the cancer cell antigen comprises one or more MHC class I binding epitopes.
- 3. The isolated nucleic acid of claim 1, wherein the cancer cell antigen has a capability to elicit cytotoxic T cell lysis.
- 4. An isolated nucleic acid comprising a nucleic acid sequence that is at least 70% identical to the sequence of the nucleic acid of claim 1, and which encodes a cancer cell antigen comprising one or more MHC class I binding epitopes.
- 5. The isolated nucleic acid of claim 4, wherein the nucleic acid sequence is at least 90% identical to the sequence of the nucleic acid of claim 1.
- 6. The isolated nucleic acid of claim 4, wherein the cancer cell antigen has a capability to elicit cytotoxic T cell lysis.
- 7. An isolated nucleic acid encoding a cancer antigen comprising one or more MHC class I binding epitopes, which nucleic acid hybridizes to the complement of the nucleic acid of claim 1 under the following stringent conditions: a final wash in 0.1X SSC at 65°.
- 8. The isolated nucleic acid of claim 7, wherein the cancer cell antigen has a capability to elicit cytotoxic T cell lysis.

- 28. The vaccine of claim 27, wherein the one or more MHC-binding epitopes are selected from the group consisting of an HLA-A0201 binding epitope, an HLA-24 binding epitope, an HLA-A3 binding epitope, an HLA-A1 binding epitope, and combinations thereof.
- 29. The vaccine of claim 28, wherein the antigen comprises SEQ ID NO:22, or MHC class I binding fragment thereof.
- 30. The vaccine of claim 26, further comprising a capability to elicit a humoral or cytotoxic T lymphocyte response to the antigen.
- 31. A method for treating cancer, which comprises administering to a subject in need thereof a vaccine comprising a therapeutically effective amount of a vaccine of claim 26.
- 32. The method of claim 31, wherein the vaccine is administered in combination with a chemotherapeutic agent.
- 33. A monoclonal antibody or antigen binding fragment thereof, which specifically binds to the antigen of claim 21.
- 34. The monoclonal antibody of claim 33 which is a chimeric, human, or humanized antibody.
- 35. A diagnostic reagent comprising an antibody or antigen binding fragment of claim 33 and a detectable label.
- 36. A therapeutic reagent comprising an antibody or antigen binding fragment of claim 33 and an effector moiety bound.
- 37. The therapeutic reagent of claim 36, wherein the effector moiety is a radionuclide, an enzyme, a cytotoxin, a growth factor, or a drug.

- 38. A method for treating cancer, which comprises administering to a subject in need thereof a therapeutically effective amount of an antibody or antigen binding fragment of claim 33.
- 39. The method of claim 38, wherein the antibody is administered in combination with a chemotherapeutic agent.
- 40. A method for treating cancer, which comprises administering to a subject in need thereof a therapeutically effective amount of a therapeutic reagent of claim 36.
- 41. The method of claim 40, wherein the therapeutic reagent is administered in combination with a chemotherapeutic agent.
- 42. A monoclonal antibody or antigen binding fragment thereof that specifically binds Anat-2 antigen.
- 43. The monoclonal antibody of claim 42 which is a chimeric, human, or humanized antibody.
- 44. A diagnostic reagent comprising an antibody or antigen binding fragment of claim 42 and a detectable label.
- 45. A therapeutic reagent comprising the monoclonal antibody or antigen binding fragment of claim 42 and an effector moiety.
- 46. The therapeutic reagent of claim 45, wherein the effector moiety is a radionuclide, an enzyme, a cytotoxin, a growth factor, or a drug.
 - 47. The therapeutic reagent of claim 46, wherein the radionuclide is ⁹⁰Y or ¹³¹I.
- 48. The monoclonal antibody or antigen binding fragment of claim 42, which does not specifically bind to Anat-1, Anat-3 or Anat-4.



- 49. A method of treating cancer comprising administering to a subject in need thereof a therapeutically effective amount of the antibody or antigen binding fragment of claim 42.
- 50. The method of claim 49, wherein the antibody is administered in combination with a chemotherapeutic agent.
- 51. A method of treating cancer comprising administering to a subject in need thereof a therapeutically effective amount of the therapeutic reagent of claim 45.
- 52. The method of claim 51, wherein the therapeutic agent is administered in combination with a chemotherapeutic agent.